Claims

1. A method for compressing data representing a 3D unit vector comprising the steps of:

a) determining X, Y, and Z components from the vector;

b) determining in which octant of an octant pair the vector falls to derive octant pair data;

b) scaling the vector with a scaling factor;

d) deriving compressed data values to represent the vector from the octant pair data and the scaled vector data.

2. A method for compressing data representing a 3D unit vector according to claim 1 in which step b) uses the signs of the X, Y, and Z components to determine the octant pair data.

3. A method for compressing data representing a 3D unit vector according to claims 1 or 2 in which the scaling step is applied to the X and Y components.

4. A method for compressing data representing a 3D unit vector according to claim 3 in which the compressed data values are derived from the octant pair data and the scaled X and Y components in combination with the sign of the Z component.

5. Apparatus for compressing data representing a 3D unit vector comprising:

a) means for determining X, Y and Z components from the vector;

b) means for deriving octant pair data by determining in which octant of a plurality of octant pairs the vector falls;

c) means for scaling the vector data values;

d) means for deriving compressed data values to represent the vector from the octant pair data and the scaled vector data.

6. Apparatus for compressing data representing a 3D unit vector according to claim 5 in which the signs of the X, Y, and Z components are used to determine octant pair data.

7. Apparatus for compressing data representing a 3D unit vector according to claims 5 or 6 in which the scaling means applies the scaling factor to the X and Y components.

8. Apparatus for compressing data representing a 3D unit vector according to claim 5 in which the compressed data values are derived from the octant pair data and the scaled X and Y components in combination with the sign of the Z component.

9. A method for decompressing data representing a 3D unit vector from compressed data comprising three fields, the methods comprising the steps of:

a) identifying one of four octant pairs from data stored in the first field;

b) extracting first and second data values from second and third fields;

c) determining in which octant of the octant pair the vector falls;

d) deriving X, Y and Z components in dependence of the choice of octants;

e) normalising the X, Y, and Z components to derive a unit vector.

10. Apparatus for decompressing data representing a 3D unit vector from compressed data of three fields, the apparatus comprising:

a) means for identifying one of four octant pairs from data stored in the first field;

b) means for extracting first and second data values from the second and third fields respectively;

c) means for determining in which octant of the identified octant pair the vector falls;

d) means for deriving X, Y and Z components in dependence on the choice of octant;

e) means for normalising the X, Y and Z components to derive a unit vector.